Electronic Supplementary Material (ESI) for Dalton Transactions.

Supplementary

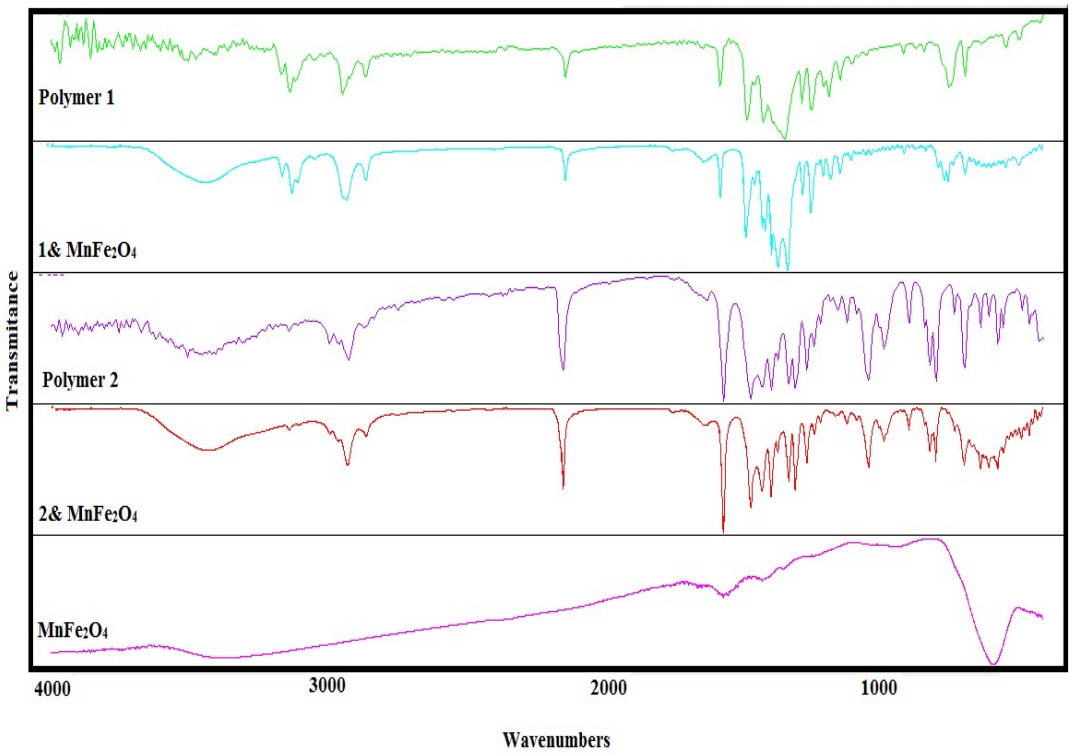


Figure S1. FT-IR of $MnFe_2O_4$, **1**, **1**&$MnFe_2O_4$, **2** and **2**&$MnFe_2O_4$ compounds in the range from 400-4000 cm^{-1} with KBr.

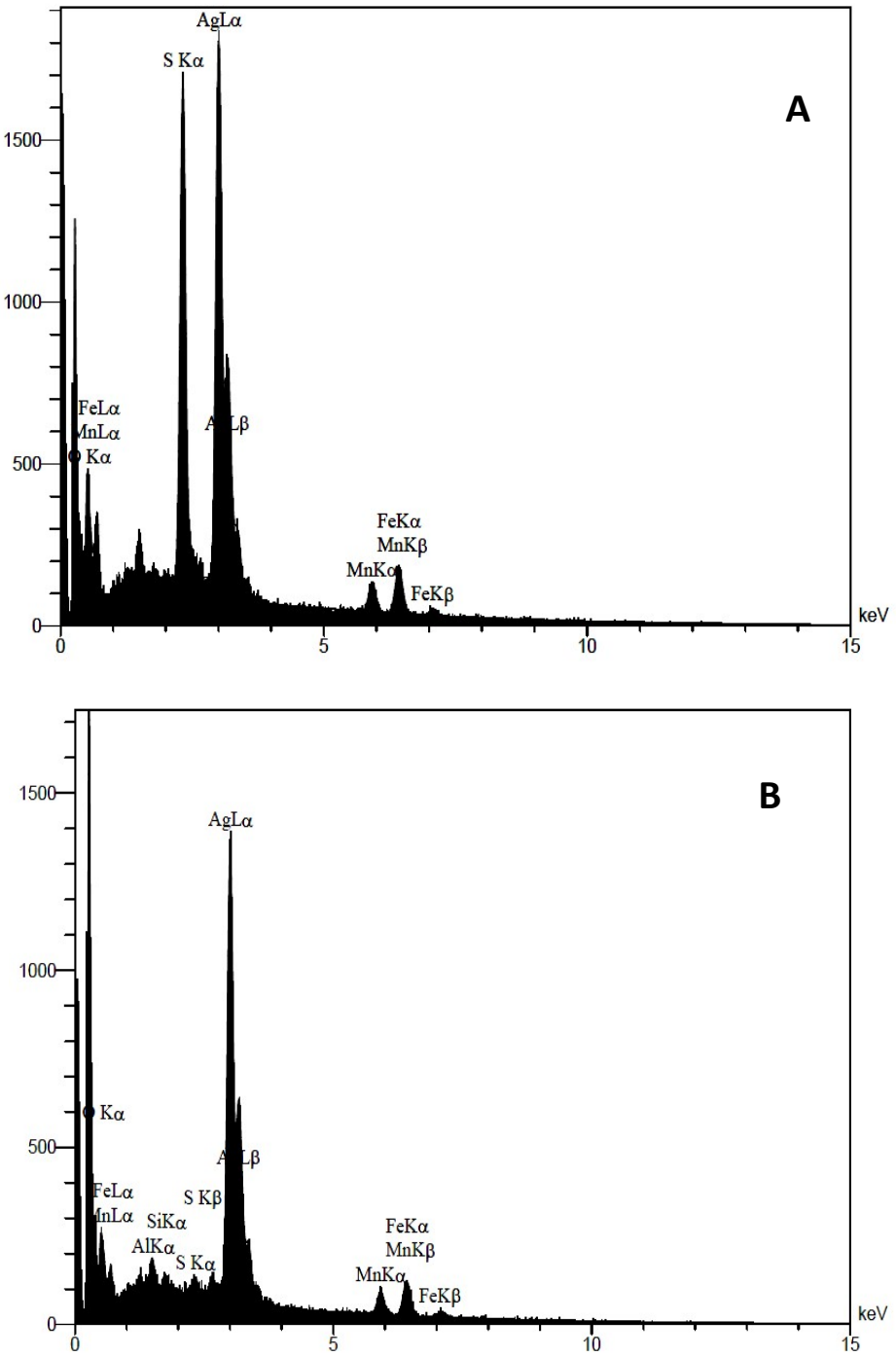


Figure S2. Energy-dispersive X-ray spectroscopy (EDX) of **1**&$MnFe_2O_4$ (A) and **2**&$MnFe_2O_4$ (B) nanocomposites.

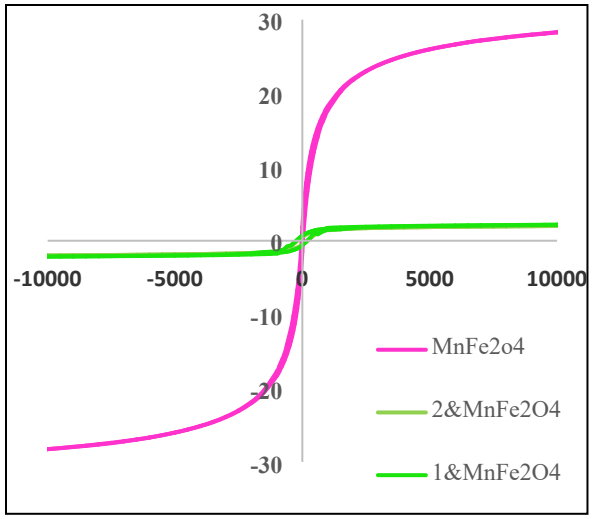


Figure S3. The vibrating sample magnetometry (VSM) of $MnFe_2O_4$, **1**&$MnFe_2O_4$ and **2**&$MnFe_2O_4$ composites in the field range of -10 to +10 kOe.

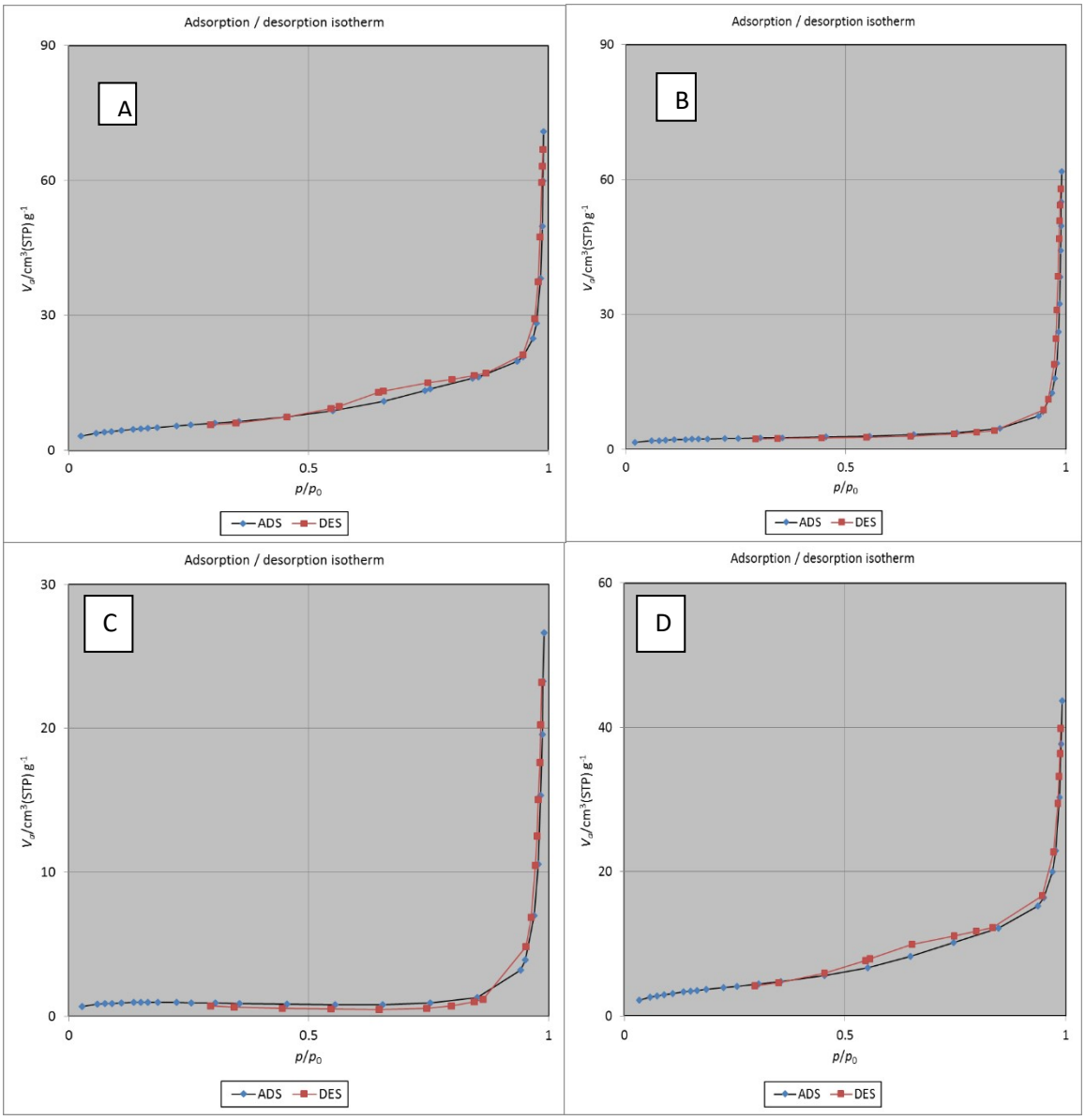


Figure S4. N_2 adsorption–desorption isotherms of synthesized polymers and nanocomposites**: 1** (A) **1**&$MnFe_2O_4$ (B) **2** (C) and **2**&$MnFe_2O_4$ (D), the inset displays the corresponding pore size distribution.

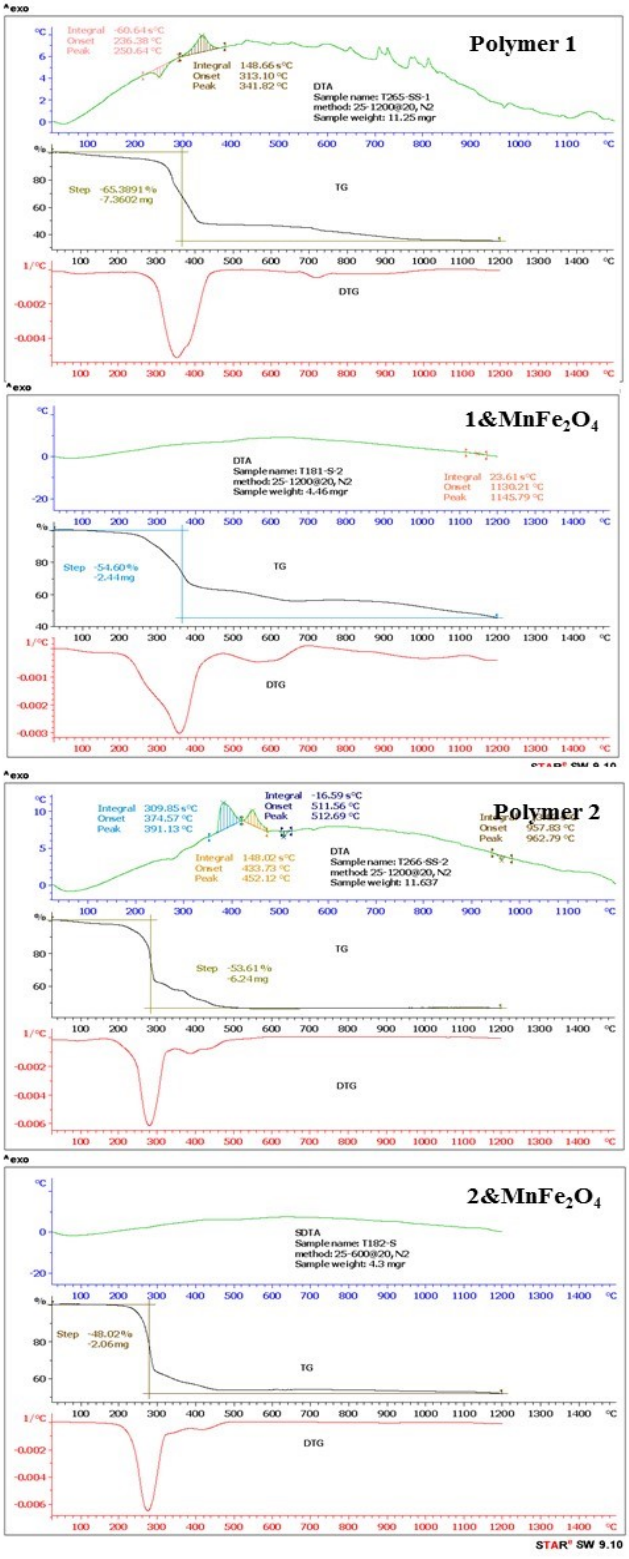


Figure S5. TGA and DTG **1**, **1**&$MnFe_2O_4$, **2** and **2**&$MnFe_2O_4$ samples under nitrogen atmosphere in the temperature range of 50- 1200˚C with rate of 10˚C min^{-1}.

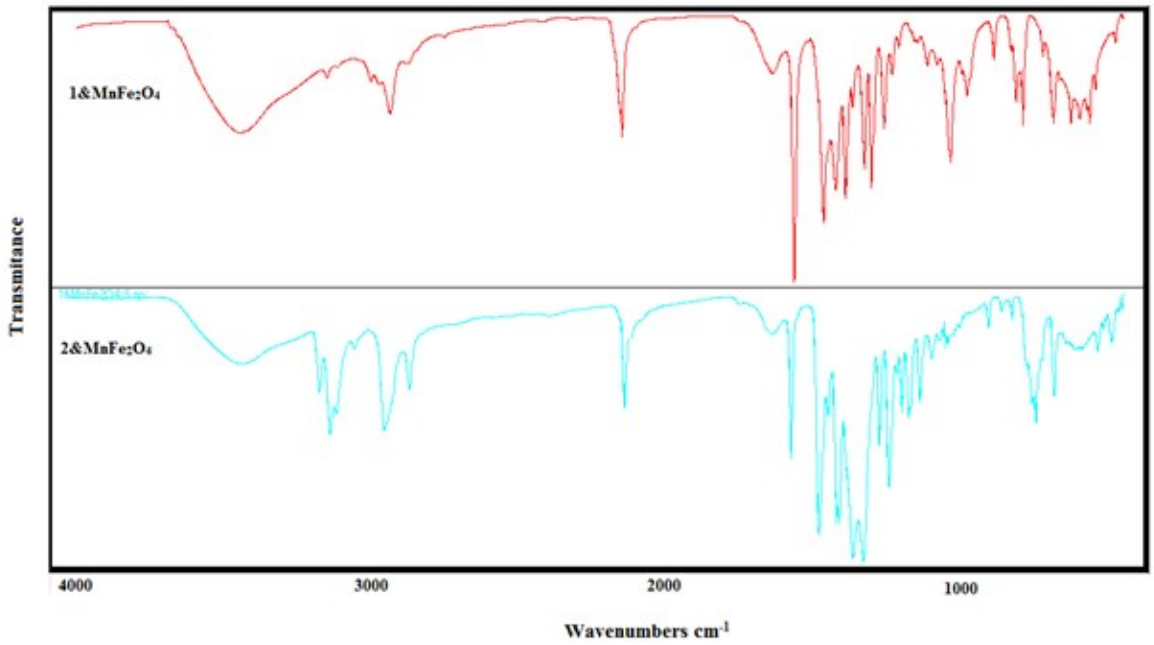


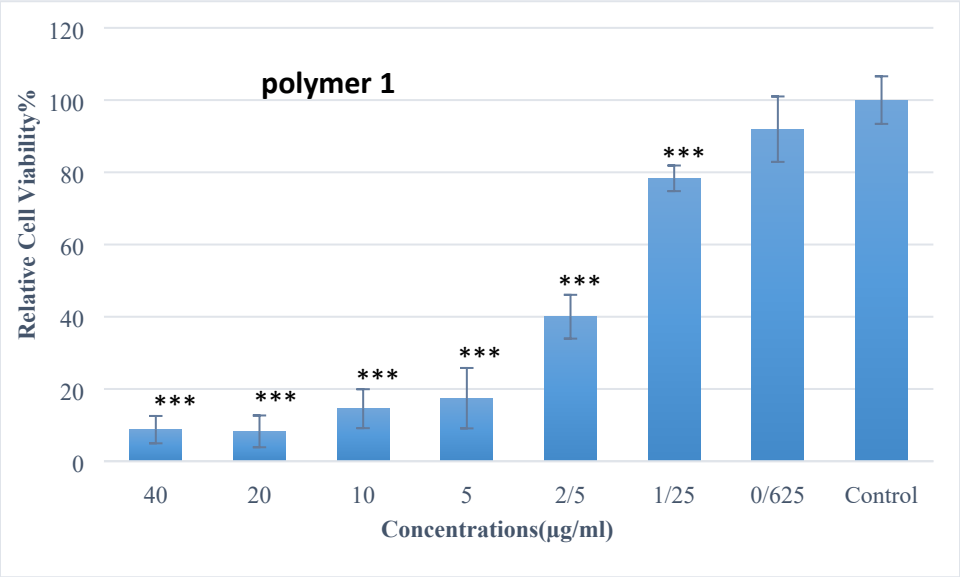
Figure S6. FT-IR spectra of recycled **1**&$MnFe_2O_4$, and **2**&$MnFe_2O_4$ composites after of washing with water.

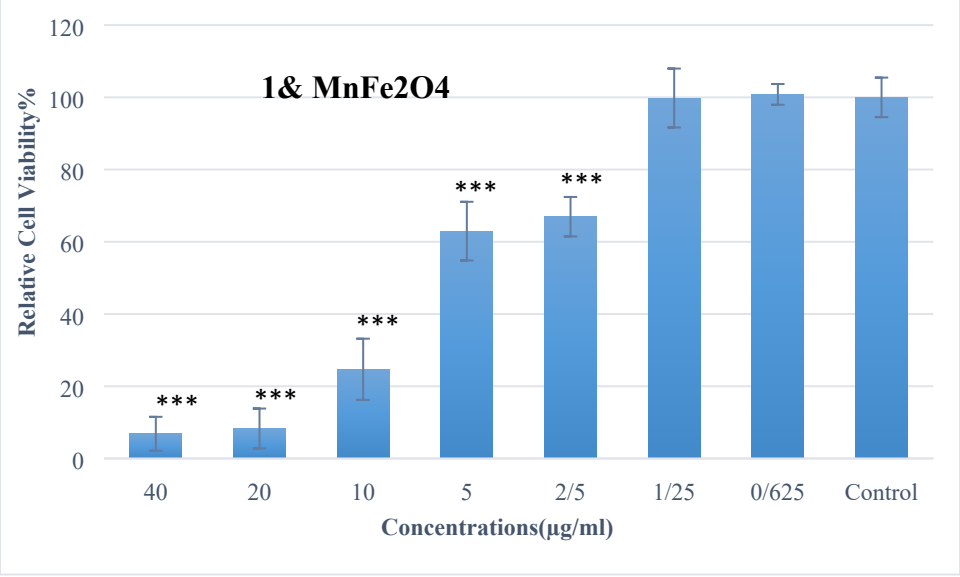
S7: Cytotoxicity assay

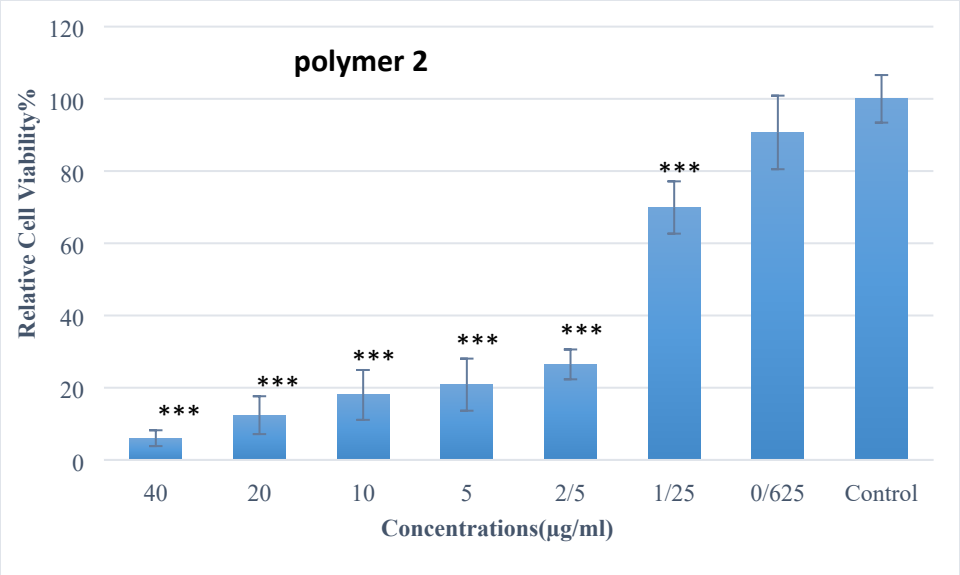
The cytotoxicity effects of nanoparticle compounds were evaluated using MTT [3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide] assay. HeLa cells (105/well) were cultured in 96-well plate and incubated under 5% CO_2 at 37°C. Twofold concentrations of the nanoparticles (0.625, 1.25, 2.5, 5, 10, 20, 40 µg/ml) were prepared in the RPMI1640. After producing a confluent cell layer, the culture medium was removed and various concentrations of the compounds were added to the wells. The cells were incubated under previous condition for 24h. The cells were washed three times with phosphate buffer saline (PBS) and then 50 µl of MTT solution (5 mg/ml) (Sigma, Germany) was added to each well. After 4h, 150 µl of isopropanol was added to the wells and further incubated for 15 min. Optical density (OD) was measured at 580 nm with an ELISA reader (BioRad, USA). The 50% inhibition concentration (IC50) was calculated from dose–response curve.

As shown in the Figure S7, polymer **2**& $MnFe_2O_4$ had the lowest toxic effect on cells (IC50: 5.95 µg/ml), while **2** showed the highest cytotoxicity effect (IC50: 2.16 µg/ml). According to the results, polymer **2**& $MnFe_2O_4$ and **1**& $MnFe_2O_4$ possessed negligible toxicity toward HeLa cells when the

concentrations equal or lower than 2.5 and 1.25 µg/ml were used, respectively. So it can be suggested to use them at lower concentrations for bacterial inhibition without cell toxicity.







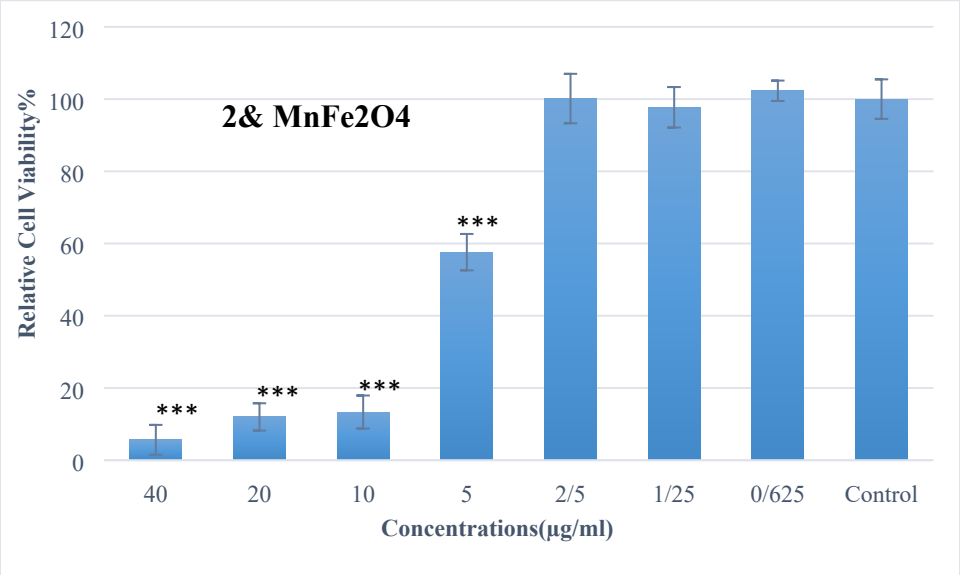
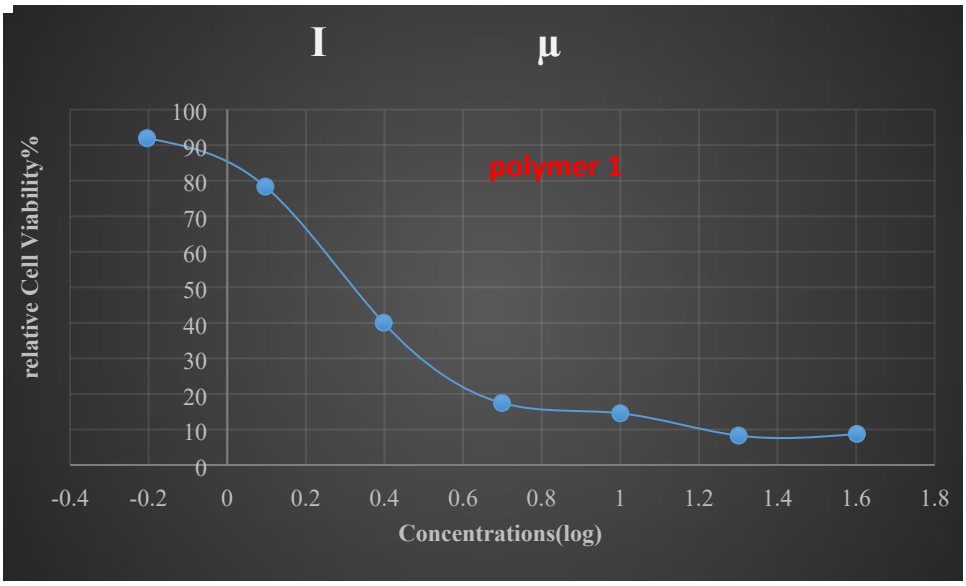
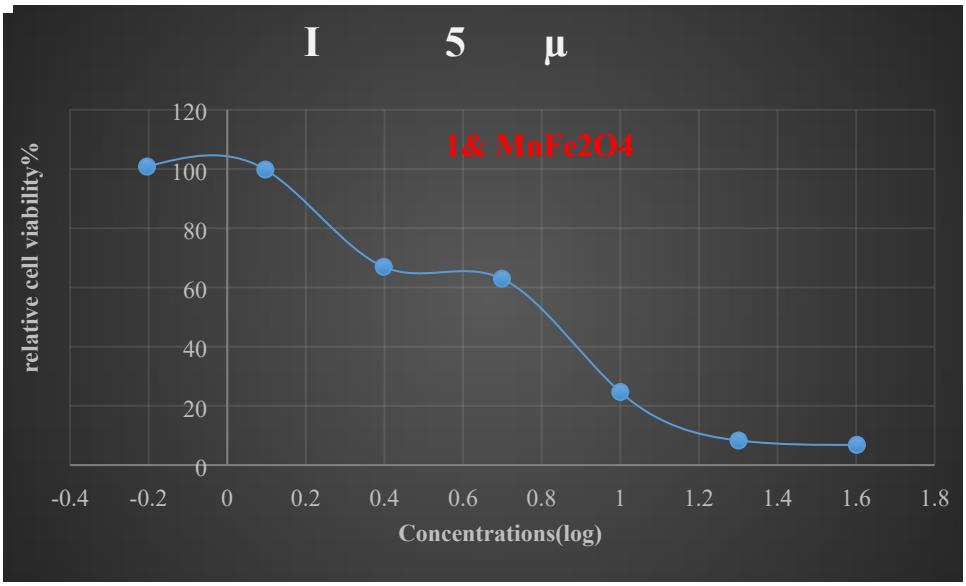
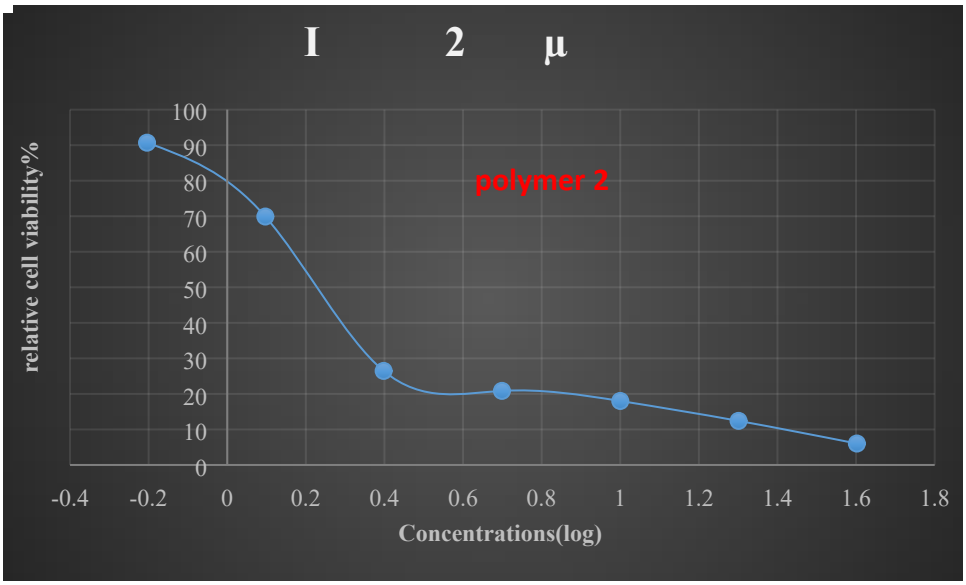


Figure S7 (a). MTT assay of Hela cells treated with polymers and magnetic nanocomposites in the range 0.625 to 40 µM.


I μ
polymer 1
relative Cell Viability%
100
90
80
70
60
50
40
30
20
10
0
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
Concentrations(log)


I 5 μ
1& MnFe2O4
relative cell viability%
120
100
80
60
40
20
0
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
Concentrations(log)



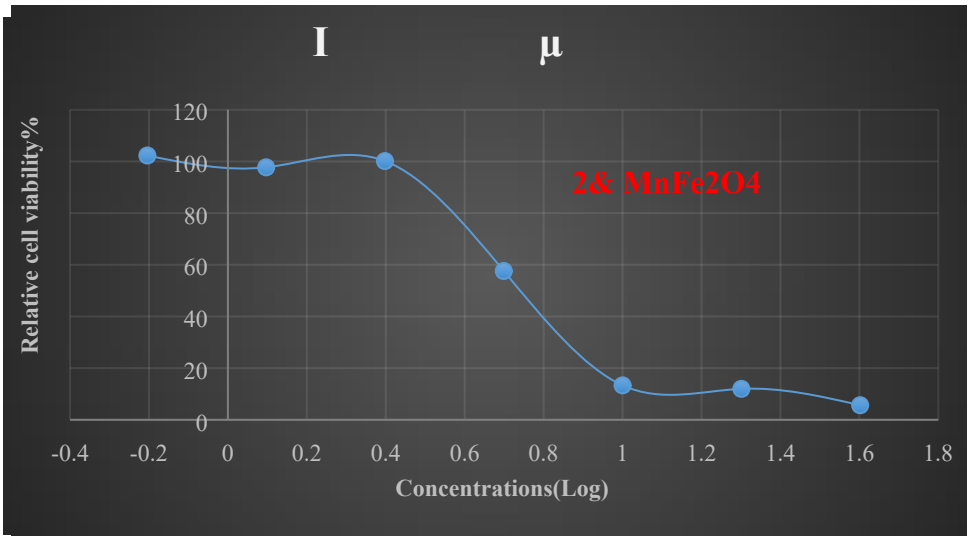


Figure S7(b). Relationship between the relative Cell Viability% value and concentrations(log) of the polymers and magnetic nanocomposites.

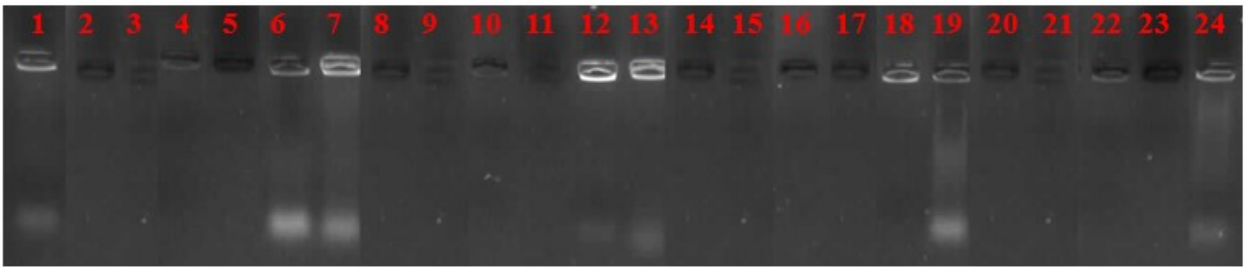


Figure S8. DNA cleavage assay following 2 h treatment by the compounds. Lane 1*: E.coli* DNA; lane 2-5: *E. coli* DNA treated with Compounds **1** , **1**&$MnFe_2O_4$,**2** and **2**&$MnFe_2O_4$, respectively; lane 6: *E. coli* DNA treated with 30% H_2O_2. Lane 8: *S. aureus* DNA; lane 8- 11: *S. aureus* DNA treated with Compounds **1, 1**&$MnFe_2O_4$,**2** and **2**&$MnFe_2O_4$, respectively; lane 12: *S. aureus* DNA treated with 30% H_2O_2. Lane 13: *B. subtilis* DNA, lane 14-17, *B. subtilis* DNA treated with Compounds **1, 1**&$MnFe_2O_4$,**2** and **2**&$MnFe_2O_4$, respectively, lane 18: *B. subtilis* DNA treated with 30% H_2O_2. Lane 19: *P. aeruginosa* DNA, lane 20-23: *P. aeruginosa* DNA treated with Compounds **1, 1**&$MnFe_2O_4$,**2** and **2**&$MnFe_2O_4$, respectively; lane 24: *P. aeruginosa* DNA treated with 30% H_2O_2.